True or False?

1. $\mathbb{R}^2$ is a two dimensional subspace of $\mathbb{R}^3$.
2. The number of vars in $A\mathbf{x} = \mathbf{0}$ is the dim of Null(A)
3. A vector space is infinite dimensional if it is spanned by an infinite number of vectors.
4. The only three dimensional subspace of $\mathbb{R}^3$ is $\mathbb{R}^3$ itself.